

Sub a1 **We claim:**

1. A method for control and maintenance of an operational organizational structure, the method comprising:

associating entities with cryptographic capabilities;

organizing entities within the organizational structure as roles; and

maintaining roles within the organizational structure.

2. A method as in claim 1, wherein the method involves at least a public key infrastructure operation.

3. A method as in claim 1 wherein the control and maintenance further comprises:

assigning elements in said organizational structure to roles within said organizational structure.

4. A method as in claim 1 wherein the control and maintenance further comprises:

assigning elements in said organizational structure to groups within said organizational structure.

5. A method as in claim 1 where the control and maintenance further comprises:

assigning elements in said organizational structure to groups within said organizational structure.

6. A method as in claim 3 wherein at least some of said elements are already grouped elements.

5 7. A method as in claim 1 wherein said cryptographic method involves access control technology.

8. A method as in claim 1 where said cryptographic method involves at least an access control operations.

10 9. A method as in claim 1 where said cryptographic method involve at least a data-base operation.

15 10. A method as in claim 1 where said cryptographic method involve at least one operation implemented in a hardware device.

11. A method as in claim 1 wherein the operational organizational structure represent at least one commercial organization.

20 12. A method as in claim 1 where operational organizational structure represents at least two organization, and wherein one of said organizations performs at least one function on behalf of second organizations.

25 13. A method as in claim 1 where the cryptographic method for control further comprises changing software.

14. A method as in claim 1 where the cryptographic method for control further comprises changing hardware.

15. A method as in claim 1 where cryptographic method for control further comprises moving hardware.

16. A system for control and maintenance of an operational structure involving at least one cryptographic method, entities within organizations, characteristics of said entities and relationships between said entities, wherein the system comprises:

- maintaining capabilities of entities;
- maintaining functions of entities;
- maintaining characteristics of entities;
- maintaining relationships of entities; and
- changing the maintained said entities said characteristics and said relationships.

17. A system as in claim 16 where at least on of said entities is an individual in an organization.

18. A system as in claim 16 where at least on of said entities is a group of individuals in an organization.

19. A system as in claim 16 where at least one capability is a role in an organization.

20. A system as in claim 16 where at least one capability is a task in an organization.

5 21. A system as in claim 16 where at least one function is an operation by a functionary in an organization.

22. A system as in claim 16 where at least one function is an operation by a group of functionaries in an organization.

10 23. A system as in claim 16 where said entities in an organization are represented in a public key infrastructure directory.

15 24. A system as in claim 16 where at least one of said characteristics and said relationships is represented in a directory.

25. A system as in claim 16 where at least one of said characteristics and said relationships is represented in a public key infrastructure directory.

20 26. A system as in claim 16 where said system's operations involve updating at least one directory.

25 27. A system as in claim 16 where said system's operations involve updating at least one public key infrastructure directory.

28. A system as in claim 16 where said changing of the said maintained elements comprises change of information processing control structure.

5 29. A system as in claim 16 where said changing of the said maintained elements comprises change of cryptographic certification information within the public-key infrastructure directories.

10 30. A system as in claim 16 where said changing of the said maintained elements comprises change of databases.

15 31. A system as in claim 16 where said changing of the said maintained elements comprises change of cryptographic certification information within the public-key infrastructure directories and further database changes.

32. A system as in claim 16 where said entities, said characteristics and said relationships are maintained by combining databases components and components of certification authorities of a public key infrastructure.

20 33. A system as in claim 16 where said entities are represented in one directory and said characteristics and said relationships are represented in a second directory.

25 34. A system as in claim 16 where said entities are represented in at least first directory and said characteristics and said relationships are represented in at least second directory.

35. A system as in claim 16 comprising observers, where said entities said characteristics and said relationships are partially visible to various observers.

36. A system as in claim 16 where said system's operation comprise
5 cryptographic key management operations.

37. A system as in claim 16 where said system's operation is activated by
at least one designated entity amongst said entities.

38. A system as in claim 16 where said system's operation is activated
10 based on agreed upon rules.

39. A system as in claim 16 where said system's operation is activated
based on authorizations.
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40. A system as in claim 16 where said system's operation is database
maintenance operations involving said entities said characteristics and said
relationships.
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41. A system as in claim 16 where said characteristics and said
relationships define authorization rules.

42. A system as in claim 16 where said characteristics and said
relationships define authorization rules based on access structure.
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43. A system as in claim 16 where said characteristics and said relationships define authorization rules based on cryptographic capability.

44. A system as in claim 16 where said characteristics and said relationships define authorization rules based on shared cryptographic capability.

45. A system as in claim 16 with the additional operations of logging said system's operations.

46. A system as in claim 16 with the additional operations of logging said system's operations, where said logging is performed in various locations in said system.

47. A system as in claim 16 with the additional operations of monitoring operations within said system.

48. A system as in claim 16 with the additional operations of time-stamping operations within said system.

49. A system as in claim 16 where at least one of said system's operations is performed distributedly via communication.

50. A system as in claim 16 where at least one of said system's operations is a distributed database operation.

51. A system as in claim 16 where at least one of said system's operations involves physical handling of devices to one of said entities.

52. A database system representing an organization involving directories representing entities, their characteristics, roles, and relationships together with their associations with cryptographic capabilities, the database system comprising following transactional components:

connection to cryptographic authorities representing the cryptographic capabilities associated with said entities, said characteristics and said relationships;

a maintenance system by which said database and said cryptographic authorities are maintained in coordination and by authorized parties assuring the representation of said organization and said cryptographic capabilities are soundly associated as defined by the coordination directives;

maintenance transactions acting within said maintenance system, maintaining view representing an organization.

53. A system as in claim 52 wherein said organization comprises a plurality of entities.

54. A system as in claim 52 wherein said cryptographic authorities is a plurality of at least one certification authorities.

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56. A system as in claim 52 wherein said cryptographic authorities is a plurality of authorities organized hierarchically.

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A system as in claim 52 wherein said authorized parties are maintained by another instantiation of the system.

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A system as in claim 52 wherein said authorized parties are assigned by management of said organization.

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A system as in claim 52 wherein said coordinating directives involve cryptographic fields assuring integrity of the operation.

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A system as in claim 52 wherein said maintaining view representing an organization may present different characteristics and components to different outside reviewers.

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A system as in claim 52 wherein said cryptographic capabilities involve digital certificates.

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A system as in claim 52 wherein said organization comprise various organizational units.

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A system as in claim 52 wherein said organization comprise of various organizational units where entities are defined in one unit and their roles are defined within a second unit.